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22850 7590 12/28/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER MCDOWELL, BRIANE				
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/584,631  
Filing Date: June 26, 2006  
Appellant(s): GESSNER ET AL.

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James Kelly  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 9/14/2009 appealing from the Office action mailed 3/16/2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Claims 1-8 and 11-17 are rejected under 35 U.S.C. 103(a) as being obvious over Brach *et al.* in view of Tamura *et al.* and

Paidi *et al.* Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brach *et al.* in view of Tamura *et al.*, Paidi *et al.*, and Rintelman *et al.*

#### **(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

#### **(8) Evidence Relied Upon**

Brach *et al.* J. Heterocyclic Chem. Vol. 7, pp. 1403-1405 (1970).

Tamura *et al.* EP 0663427 (1995).

Paidi *et al.* JP 2003040892 A (2003).

#### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

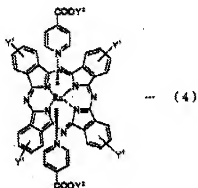
Claims 1-8 and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brach *et al.* (J. Heterocyclic Chem.) in view of Tamura *et al.* (EP 0663427-mentioned in IDS) and Paidi *et al.* (JP 2003040892 A).

The instant claims are drawn to a process for preparing metal-free 5- or 6-membered heterocyclic substituted phthalocyanines of formula I. The claimed process is carried out by converting the phthalodinitrile of formula Ia to a phthalocyanine of formula I in an inert solvent (wherein said solvent has a bp at least 120° C) in the presence of ammonia and an alkali metal hydroxide. It is well known in the art that unsubstituted or heterocyclic substituted phthalocyanines such as those shown in the

instant formula I are attractive targets for electrophoretic imaging systems due to their charge-generating photosensitive properties (see Tamura *et al.*, page 2, lines 32-46).

For example, heterocyclic substituted phthalocyanines (e.g., piperidines, see compound 7) are well described in the art and possess unique charge-generating photosensitive properties (see Paidi *et al.*, page 6, equation 4 of document and below).

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\* \* [表1]

試料番号	Y¹	Y²
1	-H	-H
2	-H	-CH₂CH₃
3	-C(CH₃)₃	-H
4	-C(CH₃)₃	-CH₂CH₃
5		-H
6		-CH₂CH₃
7		-H
8		-CH₂CH₃
9		-H
10		-CH₂CH₃

Thus, it is critical that simple synthetic methods are available to one of ordinary skill for preparing high-purity unsubstituted or substituted phthalocyanines. Thus, applicants were sought out to develop new methods for preparing high-purity substituted phthalocyanines for use in electrophoretic imaging systems or related applications.

The prior art by Brach *et al.* discloses a similar process to that of the claimed invention for preparing unsubstituted or substituted metal-free phthalocyanines. Specifically, Brach teaches that metal-free phthalocyanines are readily prepared by heating a phthalodinitrile and ammonia in an inert organic solvent with a bp of at least 120° C, (see pg 1404, first paragraph of experimental section). The claimed procedure incorporates an alkali metal hydroxide, while the Brach procedure does not describe or suggest the use of an alkali metal hydroxide in their process.

The prior art by Tamura *et al.* discloses a general synthesis of high purity metal-free phthalocyanines. More specifically, the document discloses that partially hydrogenated alkali metal phthalocyanines are obtained by taking a phthalodinitrile and heating it in an inert organic solvent in the presence of amines such as ammonia and an alkali metal source such as sodium or potassium hydroxide. The document also mentions that the alkali metal source may be used either alone or in appropriate mixtures (see page 7, lines 13-35). Subsequently, the phthalocyanines are contacted with a hydrogen-substituting agent such as methanol or water to give the metal-free compound (see page 8, lines 4-7).

As a potential grounds of motivation for employing an alkali metal in the claimed process, Tamura discovered that if the reaction was carried out under conditions wherein the phthalocyanine was partially metallated (due to the presence of the alkali metal), a rapid equilibrium existed which resulted in the dissolution of unwanted impurities; affording high purity phthalocyanines (see page 10, lines 1-10). Consequently, the metal-free phthalocyanines were ultimately obtained in high yield (>90%, see page 8, lines 19-20).

Thus based on the above discussion, one of ordinary skill would have been motivated to modify the Brach procedure by introducing an alkali metal hydroxide into the prior art procedure and have a reasonable expectation of success in obtaining an improved process for the synthesis of high purity unsubstituted or substituted phthalocyanines.

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brach *et al.* (J. Heterocyclic Chem.) in view of Tamura *et al.* (EP 0663427-mentioned in IDS) and Paidi *et al.* (JP 2003040892 A) and in further view of Rintelman (U.S. Patent 2485168).

Claims 8 and 9 are drawn to the claimed process of preparing compounds of formula Ia by converting a phthalocyanine of formula I in an inert solvent (wherein said solvent has a bp at least 120° C) in the presence of ammonia, an alkali metal hydroxide, and further comprising an alkali metal carbonate.

Brach, Tamura, and Paidi teach what has been mentioned previously and the content is applied herein to reject claims 8 and 9 in further view of the Rintelman patent.

Rintelman discloses a process for preparing metal-free phthalocyanines using phthalonitriles, an inert solvent, amine bases, and potassium carbonate to give metal-free phthalocyanines (see col. 2, lines 35-37). Therefore, Rintelman teaches that alkali metal carbonates and alkali metal hydroxides are interchangeable reagents in the preparation of phthalocyanines. Thus, one of ordinary skill would have expected that the substitution of an alkali metal carbonate for an alkali metal hydroxide or using mixtures thereof would have given a similar result.

Appellant's argument asserts that Tamura teaches away from the claimed invention and there is not motivation to combine Tamura and Brach (see page 5 of brief). The examiner respectfully disagrees.

In particular, appellant suggests that the dealkalyzing procedure (referred to as step "e" by appellant, see page 6 of brief) is omitted by Brach. Thus if one were to combine the two references, all of the steps of Tamura should be incorporated into the Brach procedure.

The examiner would like to point out to appellant that the dealkalyzing procedure mentioned by Tamura is also described in the Brach document (see page 1405, first column where the phthalocyanine is contacted with water or ethyl alcohol). Again, Tamura mentions that metal free phthalocyanines are obtained by treating partially hydrogenated alkali metal phthalocyanines with suitable hydrogen-substituting agents which include water and lower alcohols (see page 8, lines 4-6).

Based on the preponderance of evidence stated above, the examiner asserts that the claimed process is rendered obvious by the prior art.



**(10) Response to Argument**

The response has been included with the rejection above.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/BRIAN MCDOWELL/

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